UNIVERSITY OF JOHANNESBURG

DEPARTMENT OF ECONOMICS AND ECONOMETRICS

ECONOMICS 2B

FINAL ASSESSMENT: NOVEMBER 2015

APK & SOWETO CAMPUSES

DATE: 31/10/2015

ATTENDANCE SLIP

Surname: .....

Initials: .....

Student number: .....

Cell number:.....

- **This paper consists of 13 pages.**

UNIVERSITY OF JOHANNESBURG

DEPARTMENT OF ECONOMICS AND ECONOMETRICS

ECONOMICS 2B

FINAL ASSESSMENT: NOVEMBER 2015

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DATE: 31/10/2015
MARKS: 100
TIME: 2 HOURS
ASSESSORS: Prof G van Zyl, Ms JMM Viljoen & Me M Sekome
MODERATOR: Dr P Bauer

SURNAME	
INITIALS	
STUDENT NUMBER	
CELL NUMBER	

Mark schedule

	Mark		Mark		Mark		Mark		Mark
Q1		**Q2**		**Q3**		**Q4**		**Q5**	
1.1 [8]		**2.1 [6]**		**3.1 [5]**		**4.1 [6]**		**5.1 [7]**	
1.2 [7]		**2.2 [6]**		**3.2 [6]**		**4.2 [6]**		**5.2 [6]**	
		2.3 [5]		**3.3 [9]**		**4.3 [3]**		**5.3 [6]**	
		2.4 [3]						**5.4 [6]**	
								5.5 [5]	

Total mark :

Student number: _____

Question 1: Optimisation **[15]**

1.1 Sunsmile Bakeries is currently producing a high-fibre product but it is considering the introduction of a low-calorie product. The production division is of the opinion that i) low calorie bread requires 6 labour-hours of per production run, whereas high fibre bread requires 2 labour-hours per production run ii) low calorie bread requires 2 machine-hours per production run and high fibre bread also requires 2 machine- hours per production run iii) low calorie bread requires 4 units of packaging material and high fibre bread requires 12 units of packaging material per production run. During the production run the bakery has 24 labour-hours, 16 machine-hours and 48 units of packaging material available. The estimated cost per production run is R100 for low calorie bread and R50 for high fibre bread. (8)

Task	Answers
State the primal problem.	
List the equations of the constraints.	
Determine the feasible region and indicate by means of an appropriate figure.	
Indicate the solutions for the corner points.	**Corner point** **Combinations** **Solution**
What is the best solution?	

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1.2 Sunsmile Bakeries Pty (Ltd) is the major supplier of fresh baked bread in the Erkuhuleni area. The firm is currently considering a pricing strategy and most probable an expansion program. The firm needs the help of an economist to advise it on various issues. The following information applies.

The other major bakery in the area is **Brightfresh Bakeries Pty (Ltd)**. An impact study was done by the marketing department of Sunsmile Bakeries and the following scenarios emerged from their report. i) If Sunsmile increases the price with 7 cent per loaf and Brigtfresh refrains from increasing its price, Sunsmile could expect a 10% decrease in market share and Brightfresh an increase of 8% in market share. If Brightfresh matches the price increase both could expect a 4% increase in market share. ii) If Sunsmile increases the price with 5 cent per loaf and Brightfresh again refrain from increasing its price, Sunsmile could expect a decrease of 8% in market share and Brightfresh an increase of 6% in market share. If Brightfresh matches the increase both could expect a 7% increase in market share. (7)

Task	Answer
Draw the payoff matrix. (**Plot the R values in the payoff matrix**)	
Does Sunsmile have a dominant strategy? If your answer is yes indicate the dominant strategy.	
Does Brightfresh have a dominant strategy? If your answer is yes indicate the dominant strategy.	
Is there Nash equilibrium. If your answer is yes, indicate the Nash solution(s)	
What is the solution of the game? Indicate the payoffs.	
Is there a prisoner's dilemma?	

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Question 2: The firm and the input base **[20]**

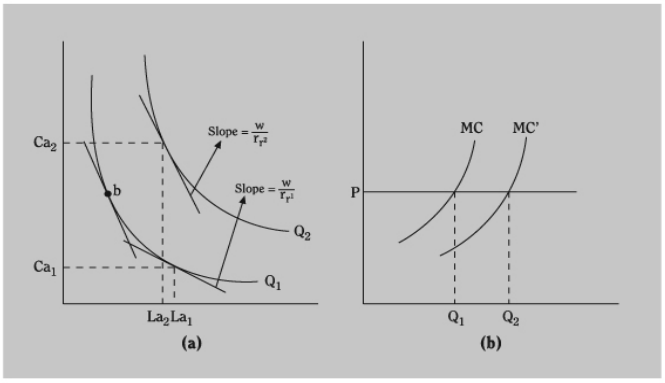
2.1 Indicate which of the following statements are correct/incorrect (mark with an X). (6)

Statement	Correct	Incorrect
1. The moment that extra consumption (ce) is greater than current consumption (cc) the 1-period return to capital accumulation is positive.		
2. If capital accumulation succeeds in raising C_o permanently the perpetual rate of return (r_α) will be negative.		
3. Capital accumulation essentially consists of withholding some output from current consumption, investing this output in some sort of equipment and using the equipment to produce output in the future.		
4. The ratio of the price of consumption today to the price tomorrow is given by 1+ the equilibrium rate of return.		
5. In perfectly competitive markets the firm will choose to hire equipment as long as the MRP>market rental rate.		
6. The total costs to the owner of equipment for one period are equal to the price times the sum of the market interest rate and the constant percentage depreciation rate.		

2.2 Circle the correct option. (6)

A firm is known to have an **[increasing <u>or</u> decreasing <u>or</u> constant]** return to scale if it more than doubles its production quantity over a year. Due to a decrease in the cost per unit of labour the firm decides to **[increase <u>or</u> decrease <u>or</u> maintain]** the number of units of labour. The firm is therefore known as **[capital-intensive <u>or</u> labour-intensive]**. The elasticity of substitution of the firm is high implying that it is **[difficult <u>or</u> easy]** to substitute labour for capital because the slope of the isoquant is relatively **[flat <u>or</u> steep]**. Capital and labour are **[complements <u>or</u> substitutes]** because they can be easily swopped.

2.3 The following figure shows the effect that a lower tax rate (T_A) on capital-driven revenue will have on the firm's desired level of capital inputs. Consider the figure and ring the correct answer in the paragraph that follows: (5)



The initial rental rate on capital is r'_r ; the firm produces Q_1 by using C_{A1} units of capital per period. Suppose a decrease in T_A. The first impact would be **[an increase <u>or</u> a decrease]** in the rental rate of capital stock. Initially **[more <u>or</u> less]** capital will be hired and because of the **[substitution <u>or</u> income]** effect there will be **[an upward <u>or</u> a downward]** movement on the **[Q_1 <u>or</u> Q_2]** isoquant. The marginal cost will **[increase <u>or</u> decrease]** and **[more <u>or</u> less]** output will be created. As a result of the **[substitution <u>or</u> output]** effect even **[more <u>or</u> less]** capital stock will be employed and **[more <u>or</u> less]** labour will be utilised.

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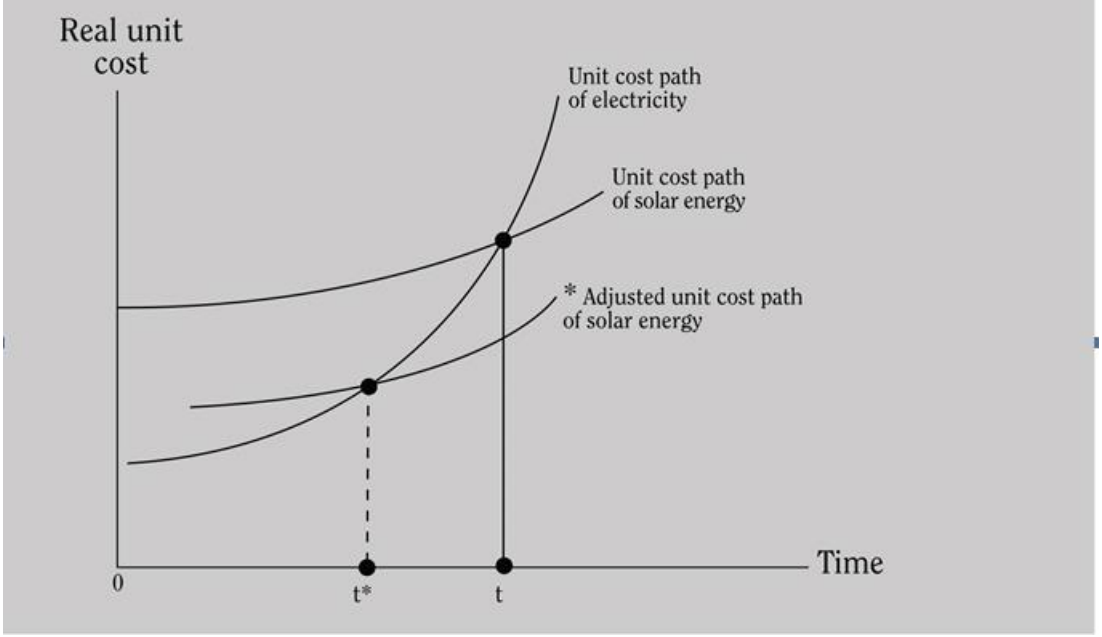
2.4 The following figure represents a situation where a firm is converting from an exhaustible to a renewable resource. Explain briefly why the conversion can occur at t*. (3)



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Question 3: Consumer behaviour **[20]**

3.1 Answer the following questions with regard to consumer behaviour. Indicate with an X whether the following statements are correct or incorrect. (5)

Statement	Correct	Incorrect
1. In the normal good case the income-consumption curve (IC curve) has a positive slope.		
2. The Engel curve is used to determine the cross-elasticity of goods and subsequent impact of income-consumption responses on development.		
3. Engels law states that an increase in demand is proportionally to an increase in income.		
4. A change in tastes is indicated by a movement of the indifference curve on the existing budget line.		
5. The primary effect of the change in price is the substitution effect.		
6. In the case of normal products the income effect is greater than the substitution effect.		
7. In the case of Giffen products the substitution effect is negative and the sign of the income effect is positive.		
8. In the case of the Giffen product the absolute size of the income effect is larger than the absolute size of the substitution effect.		
9. The revealed preference model assumes consumer behaviour to be transitive.		
10. The revealed preference model helps to proof the convex shape of the indifference curve.		

3.2 Policymakers in Zaria is considering the price and income elasticities of its consumers. Two kinds of products are traded namely necessities and luxuries. Indicate which of the following characteristics represent either the elastic, inelastic or the unitary elastic case for a price-consumption curve (PC curve). Also indicate what the slope of the PC-curve will be in each case. (6)

Characteristic	Mention (**elastic** or **inelastic** or **unitary**	Slope of PC-curve (**+** or **-** or **0** or **α**)
1. A decrease in the price of luxuries, ceteris paribus, will result in a higher total level of utility and the consumers will consume more luxuries and fewer necessities.		
2. A decrease in the price of luxuries, ceteris paribus, will result in a higher total level of utility and the consumers will consume more luxuries but the same amount of necessities.		
3. A decrease in the price of luxuries, ceteris paribus, will result in a higher total level of utility and the consumers will consume more of both kinds of products.		

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3.3 The Bureau of Economic Research in Zaria would like to change the price of luxury goods in the country. They request you to indicate the implications of a change in the price of luxury products, ceteris paribus. Luxuries are regarded as 'normal' products and the aim is to determine the possible income and substitution effects of a price change. Ring the correct option. (9)

- A decrease in the price of luxuries will result in a **smaller** or **higher** quantity intercept for luxuries. The slope of the applicable income-consumption curve will be **negative** or **positive**. The coefficient of income elasticity will be **positive** or **negative**. The substitution effect of the lower price for luxuries is **positive** or **negative**. The sign of the income effect is **positive** or **negative**. In this scenario the substitution effect is **greater** or **smaller** than the income effect. (Ring the correct option).

- Assume that there is a certain product in Zaria that is regarded as inferior (say product Z) and that the price of product Z decreases. The income effect is **positive** or **negative**. The substitution effect is **greater** or **smaller** than the income effect. The derived demand curve for product Z has a **negative** or **positive** slope.

Question 4: Economic efficiency **[15]**

4.1 Proof that an equal allocation of resources amongst individuals is not necessarily efficient. Use an Edgeworth box diagram to illustrate and explain this, showing the efficient/optimal allocations of two goods (Luxuries and Necessities) amongst two individuals (Peter and Mary). Also clearly name the line that joins these points. Name the horizontal-axis, Luxuries and the vertical axis, Necessities. Also name the origin on the left bottom as Op (origin for Peter) and the origin on your top right as Om (origin for Mary). (6)

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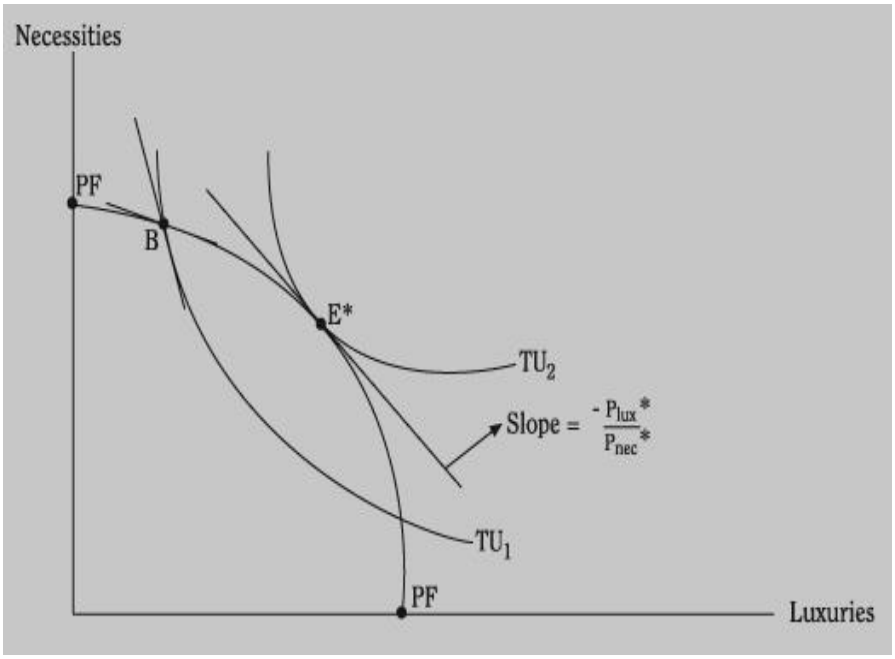
4.2 Provide the three efficiency points that fits the three rules that should simultaneously be adhered to if production is to be truly efficient in the table below. (6)

Rule	Efficiency point
1. How should each firm allocate its own available resources (K&L) to produce two products?	
2. How should production factors be allocated among firms?	
3. How do we choose the correct combination of outputs for each firm?	

4.3 Consider the Figure below that indicates inefficiency in an imperfect competitive case. Then answer the questions that follow. (3)



	Question	Answer
At point B:	1. Which product is produced in an imperfect market? (**Necessities** or **Luxuries**)	
	2. Would the MRPT be **greater** or **smaller** than the MRPT at point E*?	
	3. For the monopolist would the MR_{LUX} be **greater** or **smaller** as P_{LUX}?	
	4. In term of the profit-maximising output choice will the combination of luxuries and necessities be such that the ratio of the marginal revenues are **smaller** or **greater** than the price ratio of the two products.	
	5. Is **less** or **more** luxuries produced than is optimal?	
	6. Is **less** or **more** necessities produced than is optimal?	

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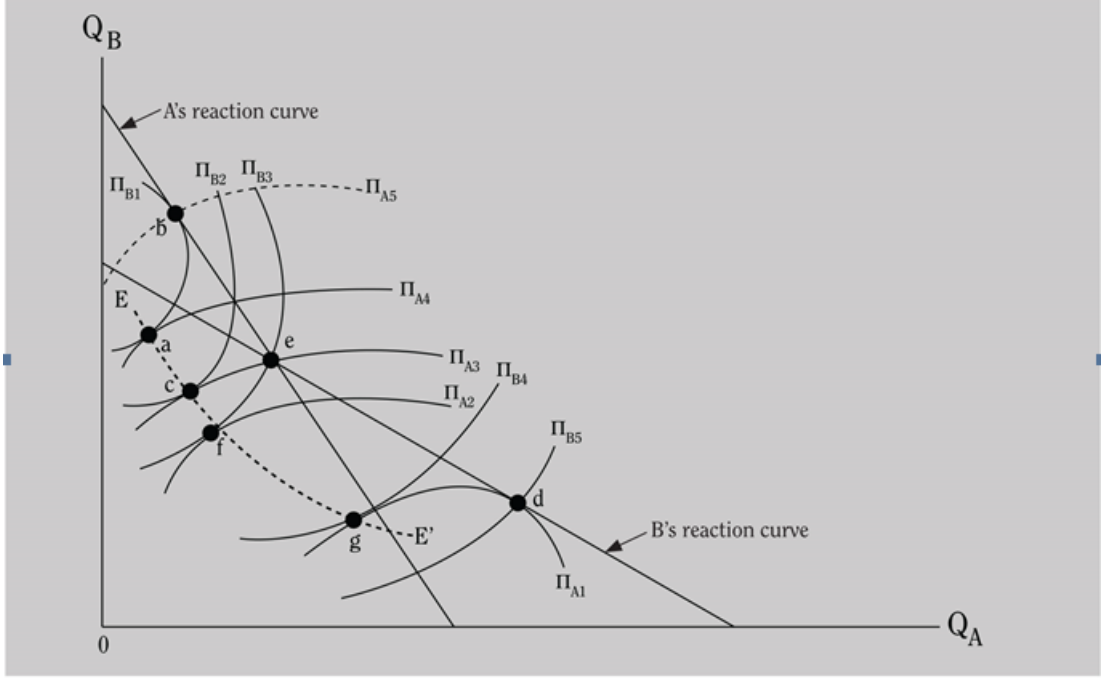
Question 5: Strategic firm behaviour **[30]**

5.1 Assume the following figure and answer the questions that follow. (7)



Task	Answer
Does iso-profit Π_{B1} indicate a higher or lower profit position for firm B when compared to iso-profit Π_{B2}?	
Indicate the Cournot solution.	
Which firm is the sophisticated leader at point ***d***?	
Explain briefly the profit positions of the two firms when firm A is the sophisticated leader.	
Explain briefly how the contraction curve EE" is derived.	
Explain briefly why point ***c*** will result in greater industry profits and not point ***e***.	

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5.2 Answer the following questions relating to the shareholder-management model (6)

List and give the equation of each of the 3 financial ratios that reflect the financial policy of the firm and which are combined into a single parameter namely the financial security constraint (fsc)

Name of financial ratio	Equation of financial ratio	Relationship of financial ratio to the financial security constraint (fsc) [**positive or negative**]

Questions	**Answer**
1. Changes in the financial security constraint (fsc) will affect [**growth in capital g_c or growth in demand g_d**]	
2. The profit margin (pm) is used as a proxy for both **.....** and **.....**	
3. Assume that the overall fsc increase. What impact would it have on JS (job security)? (Simply mention **reduced or enhanced**).	
4.g_c = [**positively or negative or non-motonic**] correlated with dr	
5. g_d = [**positively or negative or non-motonic**] correlated with dr	
6. If fsc is high, the managers are [**risk averters or risk-takers**].	

5.3 Assume the 'mark-up' rule in the setting of price (P = AVC + GPM). Explain briefly the impact on the final price if changes in cost, demand condition and taxation occurs. (6)

i)Changes in cost

ii)Changes in demand

iii)Changes in taxation

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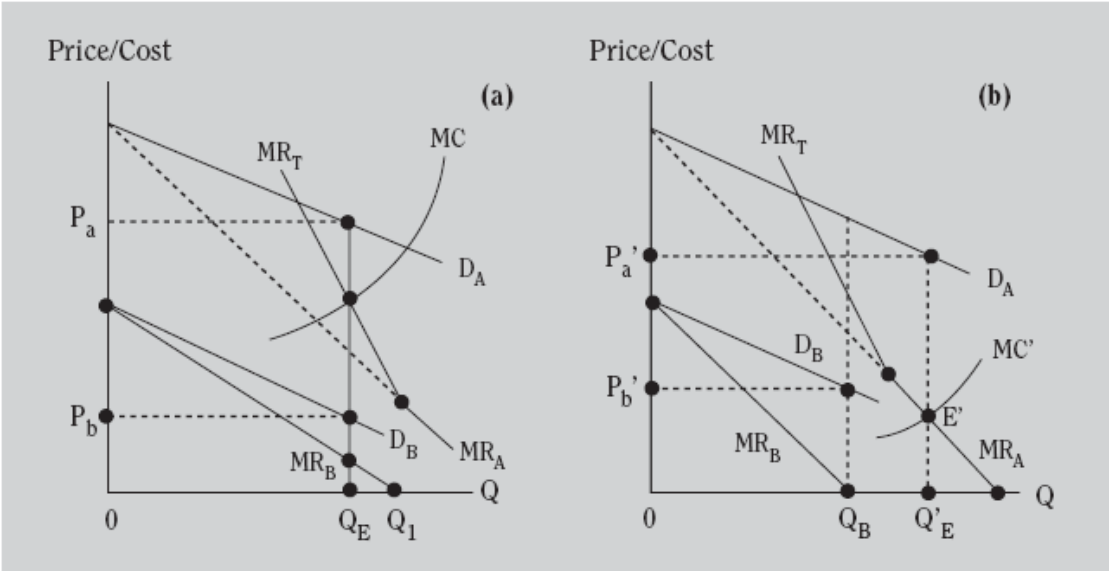
5.4 The following figures refer to multiple product pricing. Product A is the main product and product B is the by-product. Ring the correct options in the paragraph that follows. (6)



From figure (a) it is clear that no excess of the two products will occur because of the fact that both the marginal revenue values are **[positive** or **negative]**.
In figure (b) the quantity of the **[main product** or **by-product]** will be less than the quantity of the **[main product** or **by-product]**.
For the product which marginal revenue is negative the output will be based on the condition **[MR=1** or **MR=0]** and for the other product output will be based on the condition **[MR derived from its own demand = marginal cost** or **MR derived from the combined marginal revenues = marginal cost]**.
In the case where the marginal revenue of the by-product is negative at the profit maximizing output, the firm will produce [**zero units** or **Q_B** or **Q_E**] of the by-product.

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5.5 Assume the setting of a transfer price where the external demand for the intermediate product is an imperfectly competitive market.

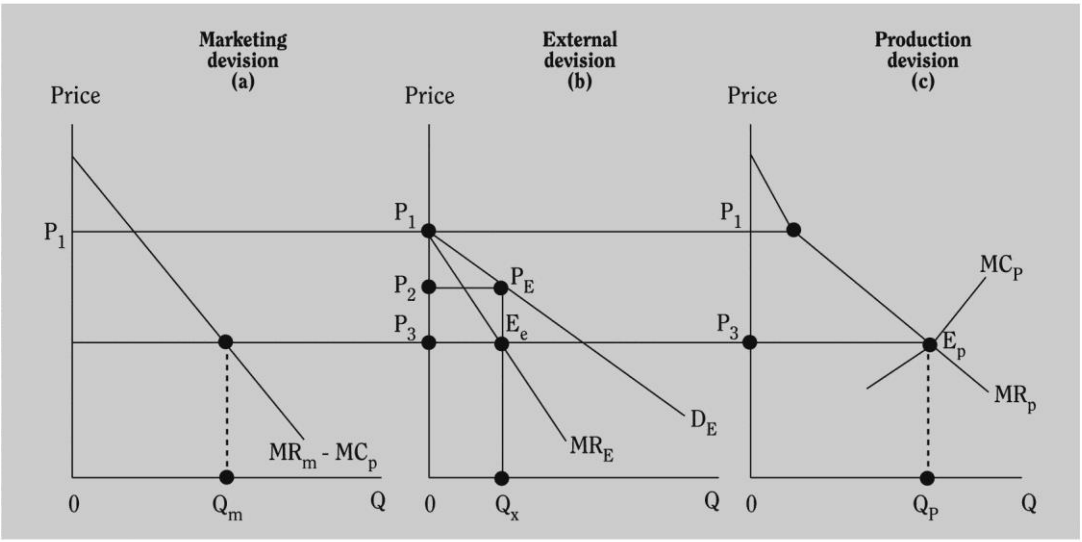

Figure D35: Transfer pricing with an imperfectly competitive market for the intermediate product

Explain briefly how the transfer price is determined and what the transfer price is, what quantity of the intermediate product wil be distributed internally, what quantity of the intermediate product will be sold externally and at what price. (5)

Transfer price:

Intermediate product internally:

Intermediate product externally:

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